FIG. 1

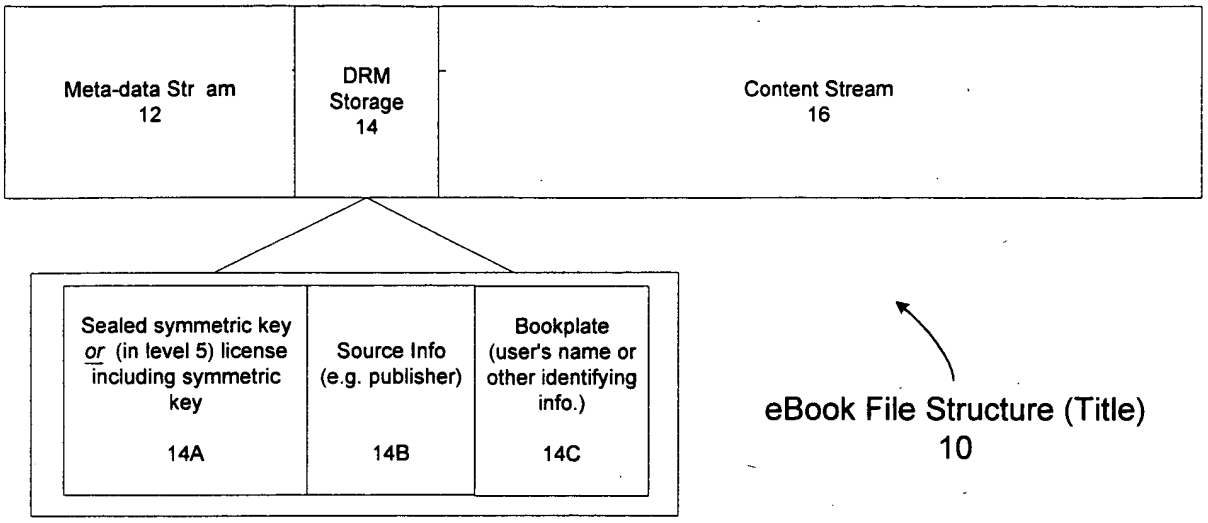
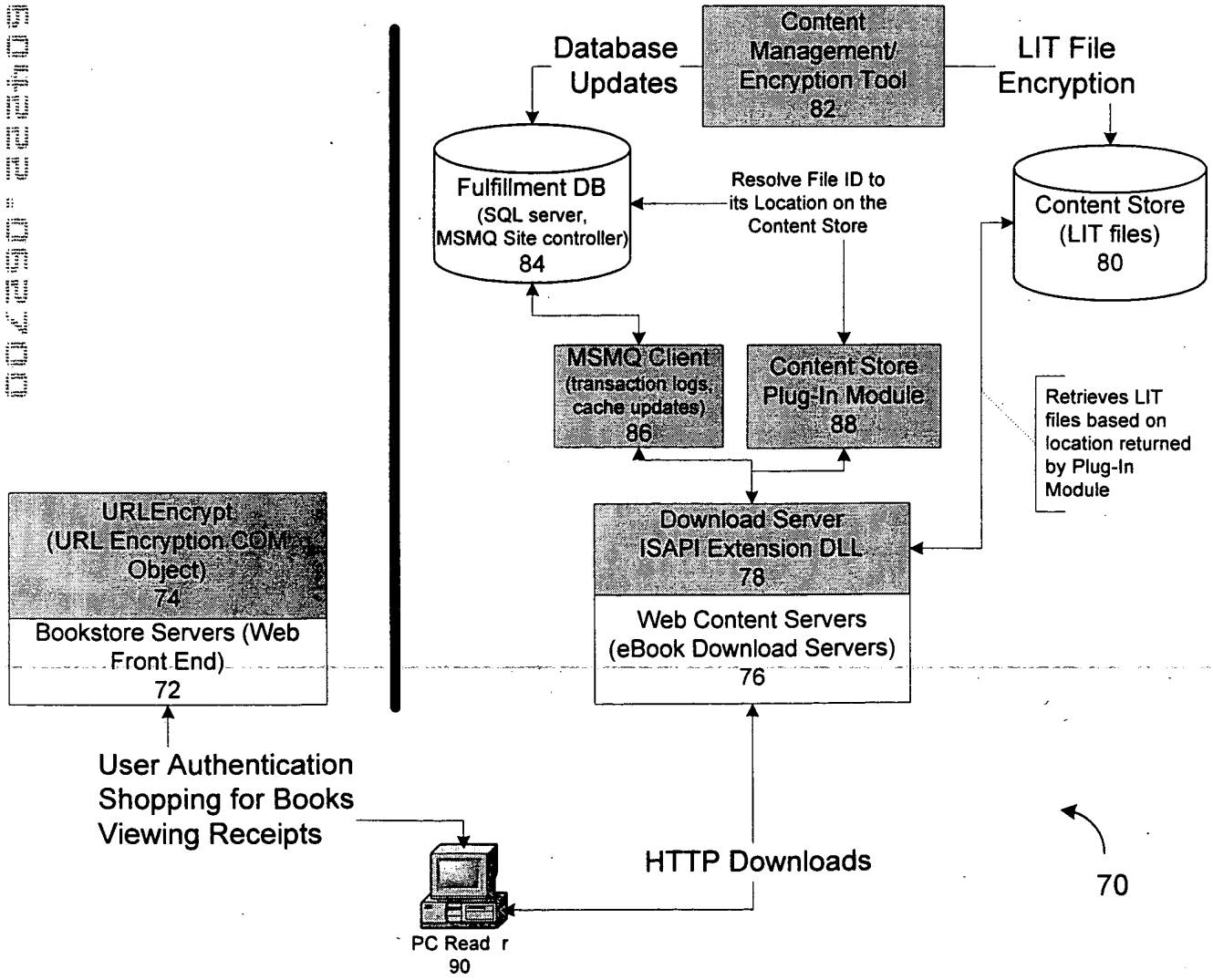

Meta-data Str am
12
DRM
Storage
14
Content Stream
16
Sealed symmetric key
or (in level 5) license
including symmetric
key
14A
Source Info
(e.g. publisher)
14B
Bookplate
(user's name or
other identifying
info.)
14C
eBook File Structure (Title)
10

FIG. 3


Database
Updates
Content
Management/
Encryption Tool
82
LIT File
Encryption
Fulfillment DB
(SQL server,
MSMQ Site controller)
84
Resolve File ID to
its Location on the
Content Store
Content Store
(LIT files)
80
MSMQ Client
(transaction logs,
cache updates)
86
Content Store
Plug-In Module
88
Retrieves LIT
files based on
location returned
by Plug-In
Module
URLEncrypt
(URL Encryption COM
Object)
74
Bookstore Servers (Web
Front End)
72
Download Server
ISAPI Extension DLL
78
Web Content Servers
(eBook Download Servers)
76
User Authentication
Shopping for Books
Viewing Receipts
HTTP Downloads
PC Read r
90
70

002290 "222h0960

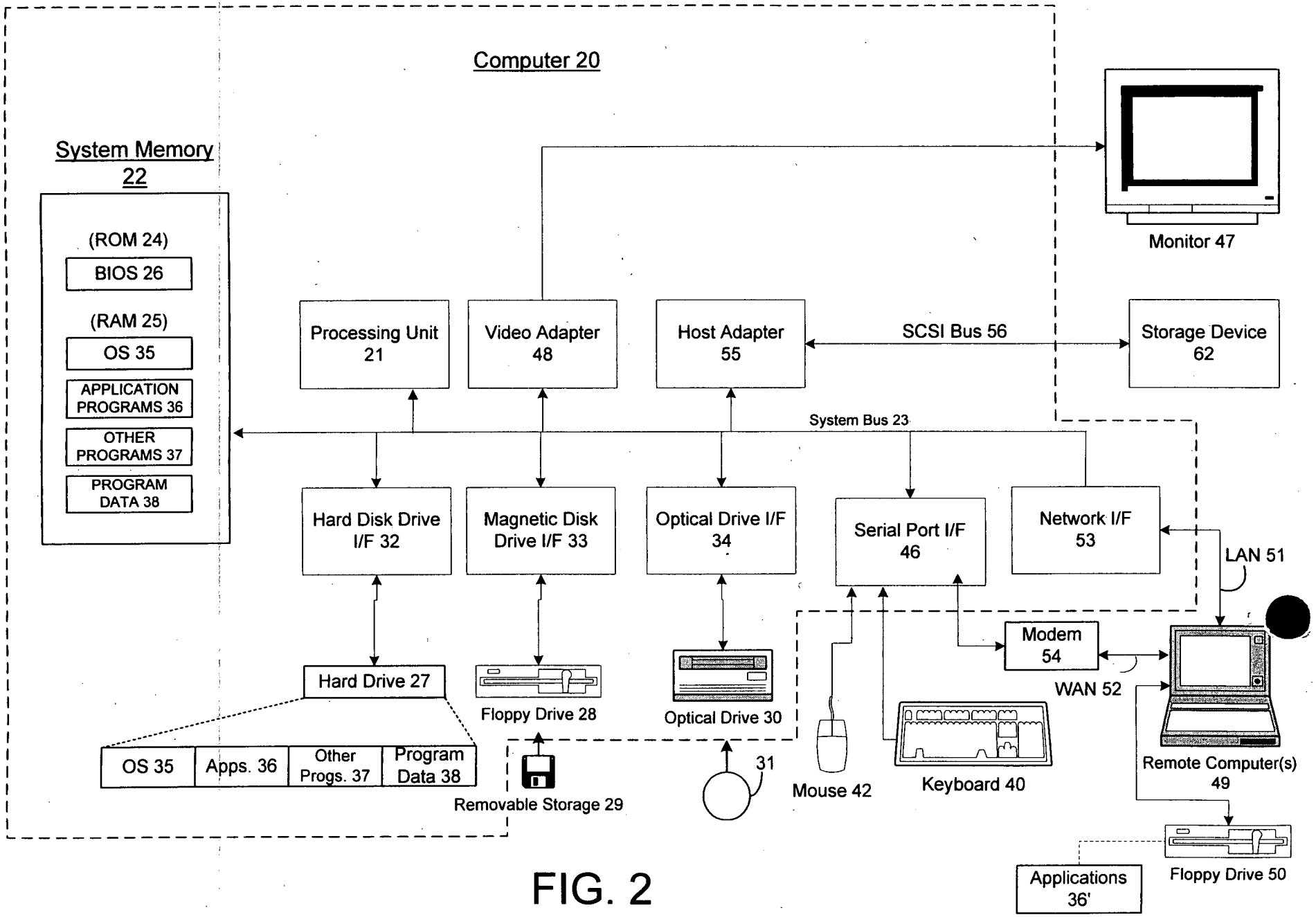


FIG. 2

FIG. 4

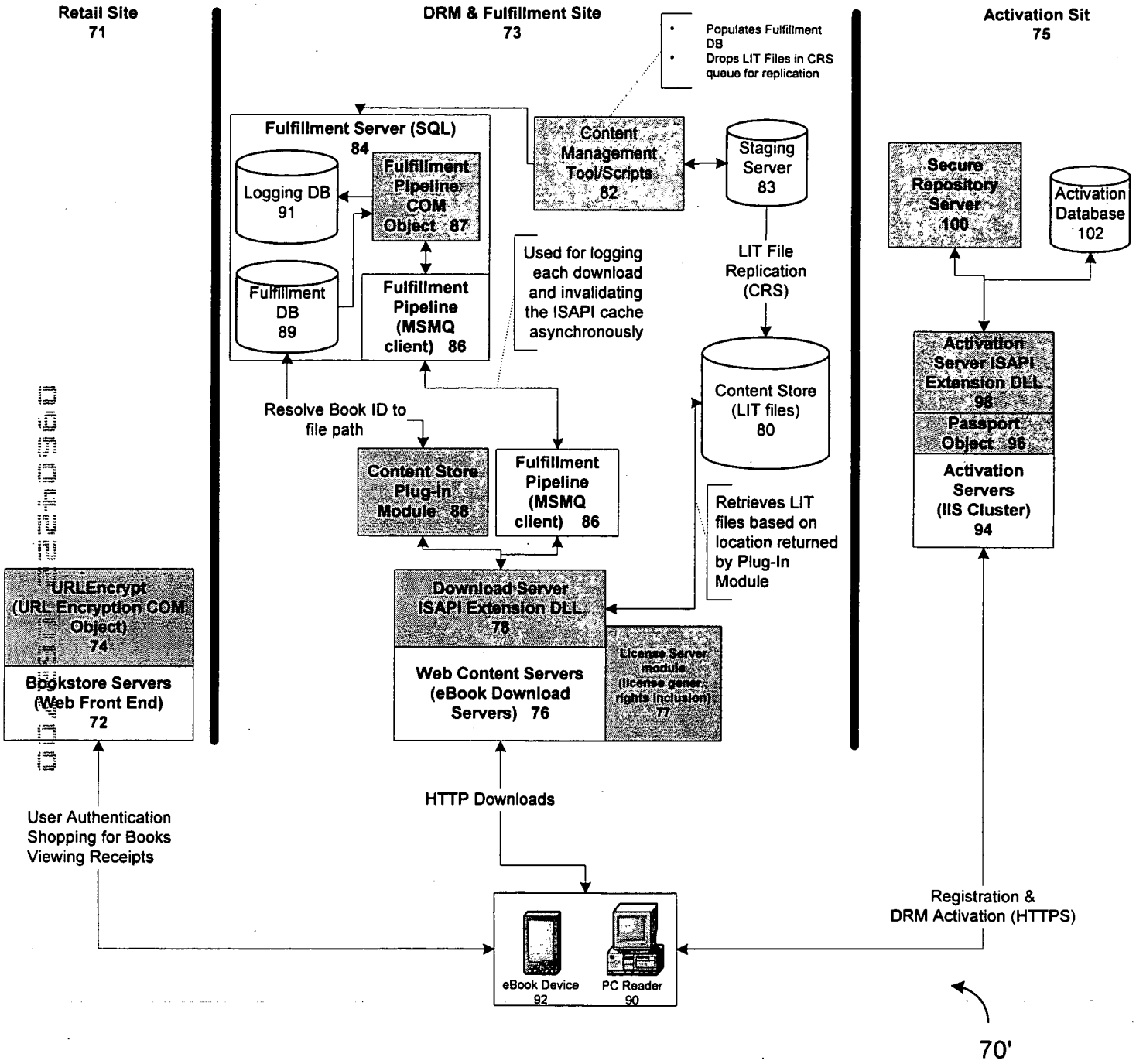

Retail Site
71
DRM & Fulfillment Site
73
Activation Sit
75
Populates Fulfillment DB
Drops LIT Files in CRS queue for replication
Fulfillment Server (SQL)
84
Logging DB
91
Fulfillment Pipeline COM Object 87
Fulfillment DB
89
Fulfillment Pipeline (MSMQ client) 86
Content Management Tool/Scripts
82
Staging Server
83
Used for logging each download and invalidating the ISAPI cache asynchronously
LIT File Replication (CRS)
Secure Repository Server
100
Activation Database
102
Activation Server ISAPI Extension DLL
98
Passport Object 96
Activation Servers (IIS Cluster)
94
Content Store (LIT files)
80
Resolve Book ID to file path
Content Store Plug-in Module 88
Fulfillment Pipeline (MSMQ client) 86
Retrieves LIT files based on location returned by Plug-In Module
URLEncrypt (URL Encryption COM Object)
74
Bookstore Servers (Web Front End)
72
Download Server ISAPI Extension DLL
78
Web Content Servers (eBook Download Servers) 76
License Server module (license gener., rights inclusion)
77
HTTP Downloads
User Authentication
Shopping for Books
Viewing Receipts
eBook Device
92
PC Reader
90
Registration & DRM Activation (HTTPS)
70'

FIG. 5

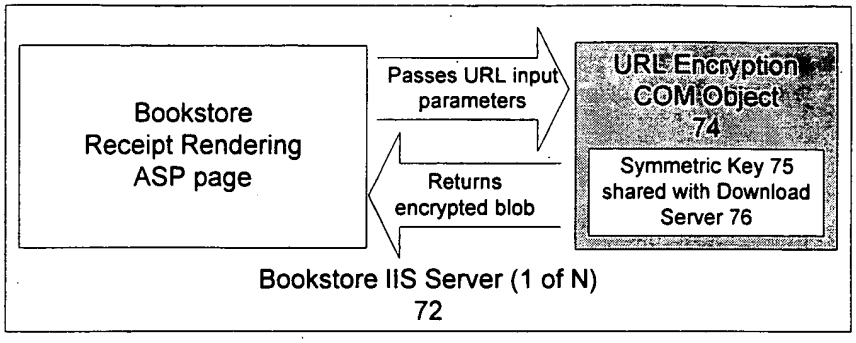

Bookstore
Receipt Rendering
ASP page
Passes URL input parameters
Returns encrypted blob
URL Encryption COM Object 74
Symmetric Key 75 shared with Download Server 76
Bookstore IIS Server (1 of N) 72

FIG. 6

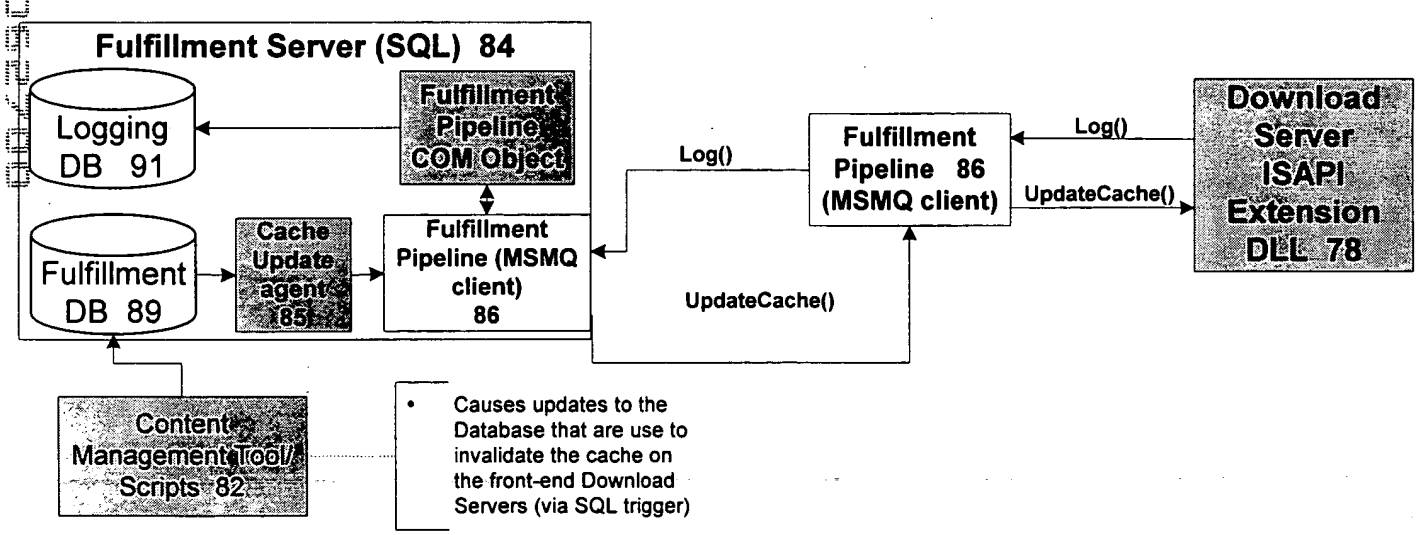

Fulfillment Server (SQL) 84
Logging DB 91
Fulfillment Pipeline COM Object
Fulfillment DB 89
Cache Update agent 85
Fulfillment Pipeline (MSMQ client) 86
Log()
Fulfillment Pipeline 86 (MSMQ client)
Log()
UpdateCache()
Download Server ISAPI Extension DLL 78
UpdateCache()
Content Management Tool/ Scripts 82
• Causes updates to the Database that are use to invalidate the cache on the front-end Download Servers (via SQL trigger)

FIG. 7

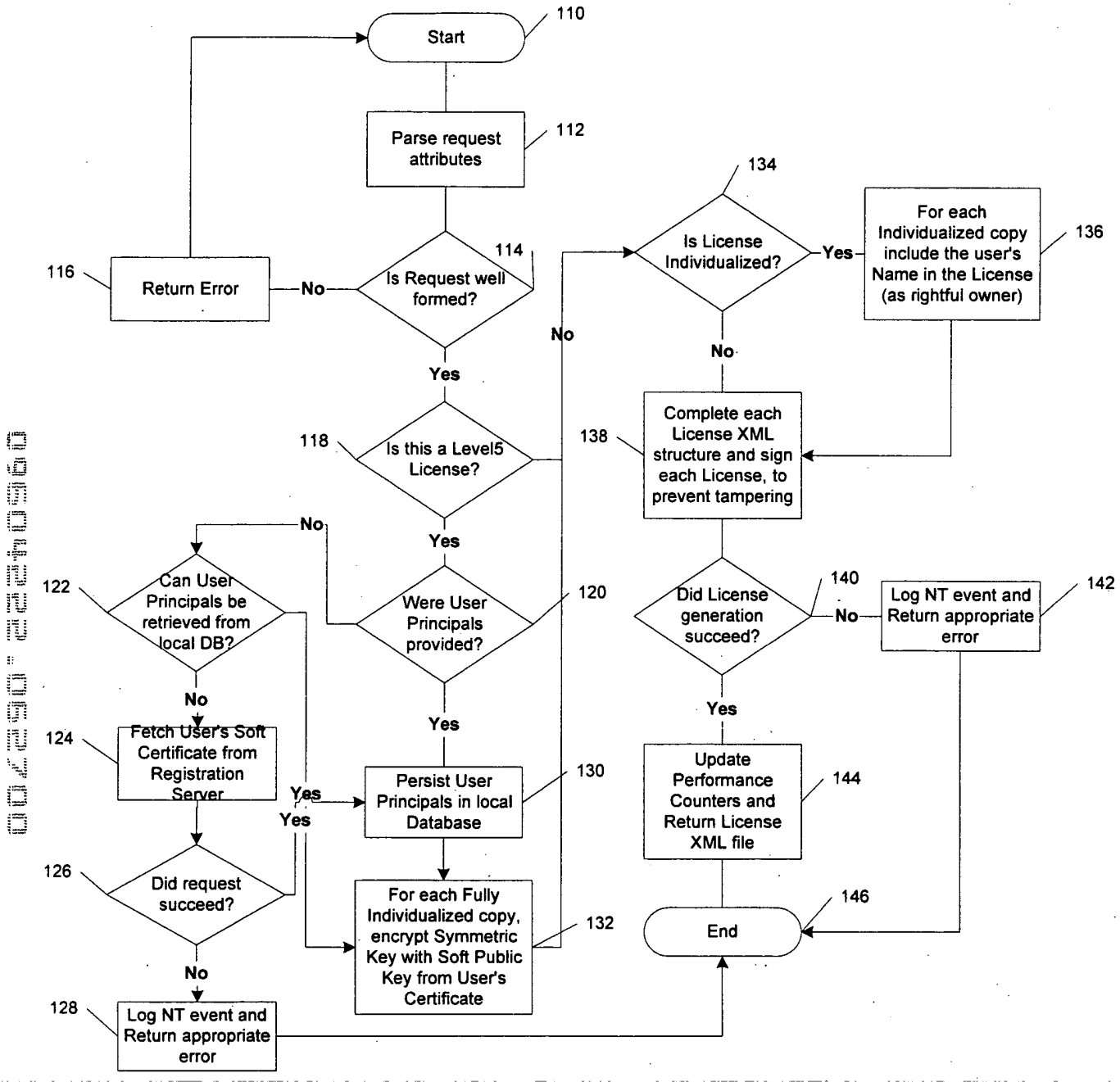

Start
110
Parse request attributes
112
Is Request well formed?
114
No
Return Error
116
Yes
Is this a Level5 License?
118
Yes
Were User Principals provided?
120
No
Yes
Can User Principals be retrieved from local DB?
122
No
Fetch User's Soft Certificate from Registration Server
124
Yes
Did request succeed?
126
No
Log NT event and Return appropriate error
128
Yes
Persist User Principals in local Database
130
For each Fully Individualized copy, encrypt Symmetric Key with Soft Public Key from User's Certificate
132
Is License Individualized?
134
Yes
For each Individualized copy include the user's Name in the License (as rightful owner)
136
No
Complete each License XML structure and sign each License, to prevent tampering
138
Did License generation succeed?
140
No
Log NT event and Return appropriate error
142
Yes
Update Performance Counters and Return License XML file
144
End
146

FIG. 8

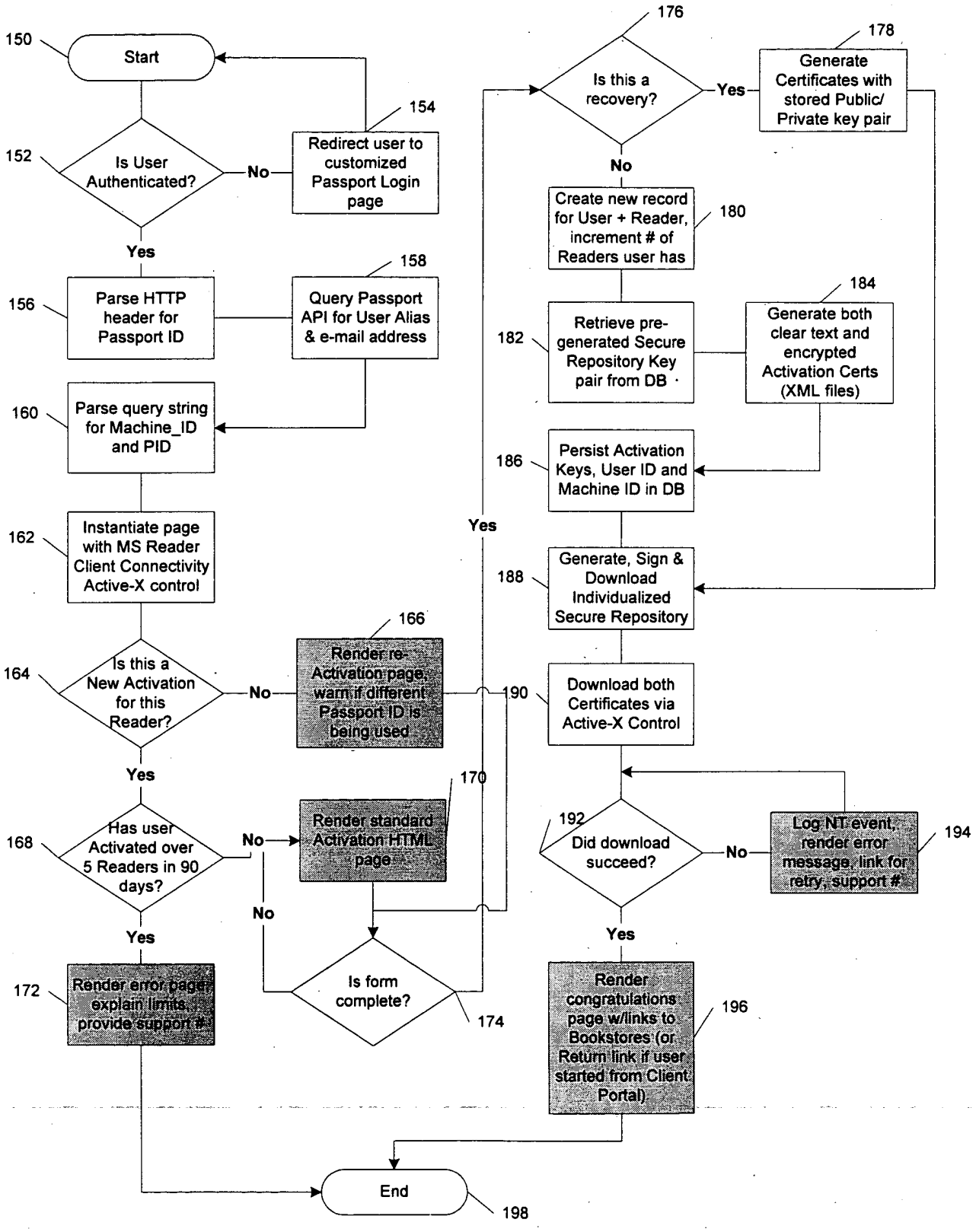

150
Start
152
Is User Authenticated?
No
154
Redirect user to customized Passport Login page
Yes
156
Parse HTTP header for Passport ID
158
Query Passport API for User Alias & e-mail address
160
Parse query string for Machine_ID and PID
162
Instantiate page with MS Reader Client Connectivity Active-X control
164
Is this a New Activation for this Reader?
No
166
Render re-Activation page, warn if different Passport ID is being used
Yes
168
Has user Activated over 5 Readers in 90 days?
No
170
Render standard Activation HTML page
Yes
172
Render error page, explain limits, provide support #
No
Is form complete?
174
Yes
176
Is this a recovery?
Yes
178
Generate Certificates with stored Public/ Private key pair
No
180
Create new record for User + Reader, increment # of Readers user has
182
Retrieve pre-generated Secure Repository Key pair from DB
184
Generate both clear text and encrypted Activation Certs (XML files)
186
Persist Activation Keys, User ID and Machine ID in DB
188
Generate, Sign & Download Individualized Secure Repository
190
Download both Certificates via Active-X Control
192
Did download succeed?
No
194
Log NT event, render error message, link for retry, support #
Yes
196
Render congratulations page w/links to Bookstores (or Return link if user started from Client Portal)
End
198

FIG. 9

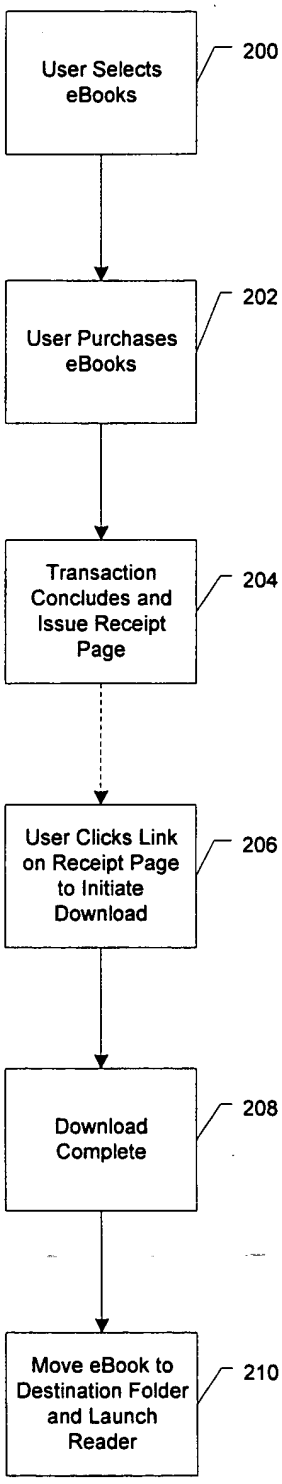


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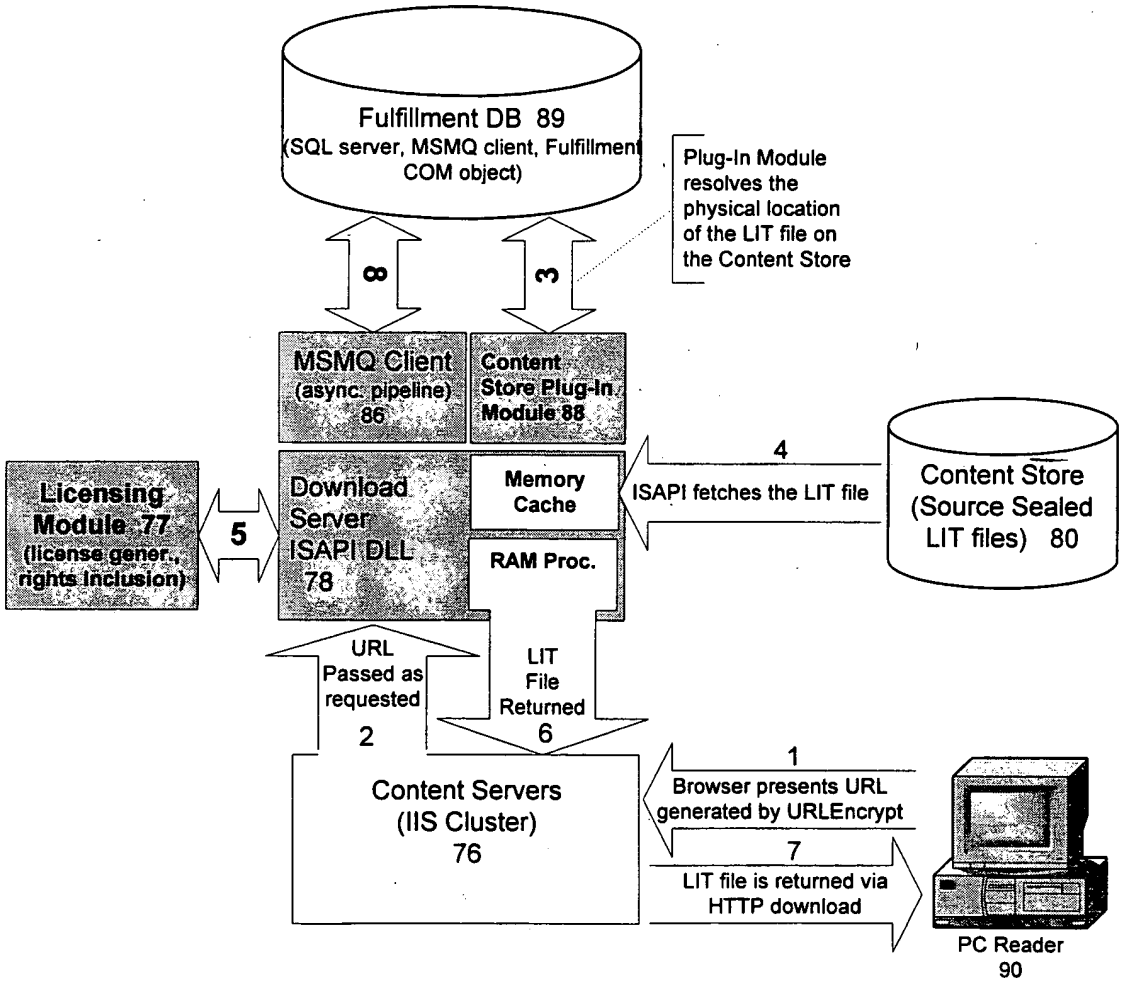
FIG. 10


Fulfillment DB 89
(SQL server, MSMQ client, Fulfillment COM object)
Plug-In Module resolves the physical location of the LIT file on the Content Store
8
3
MSMQ Client (async. pipeline) 86
Content Store Plug-In Module 88
Licensing Module 77 (license gener., rights inclusion)
5
Download Server ISAPI DLL 78
Memory Cache
RAM Proc.
4
ISAPI fetches the LIT file
Content Store (Source Sealed LIT files) 80
URL Passed as requested
2
LIT File Returned
6
Content Servers (IIS Cluster) 76
1
Browser presents URL generated by URLEncrypt
7
LIT file is returned via HTTP download
PC Reader 90